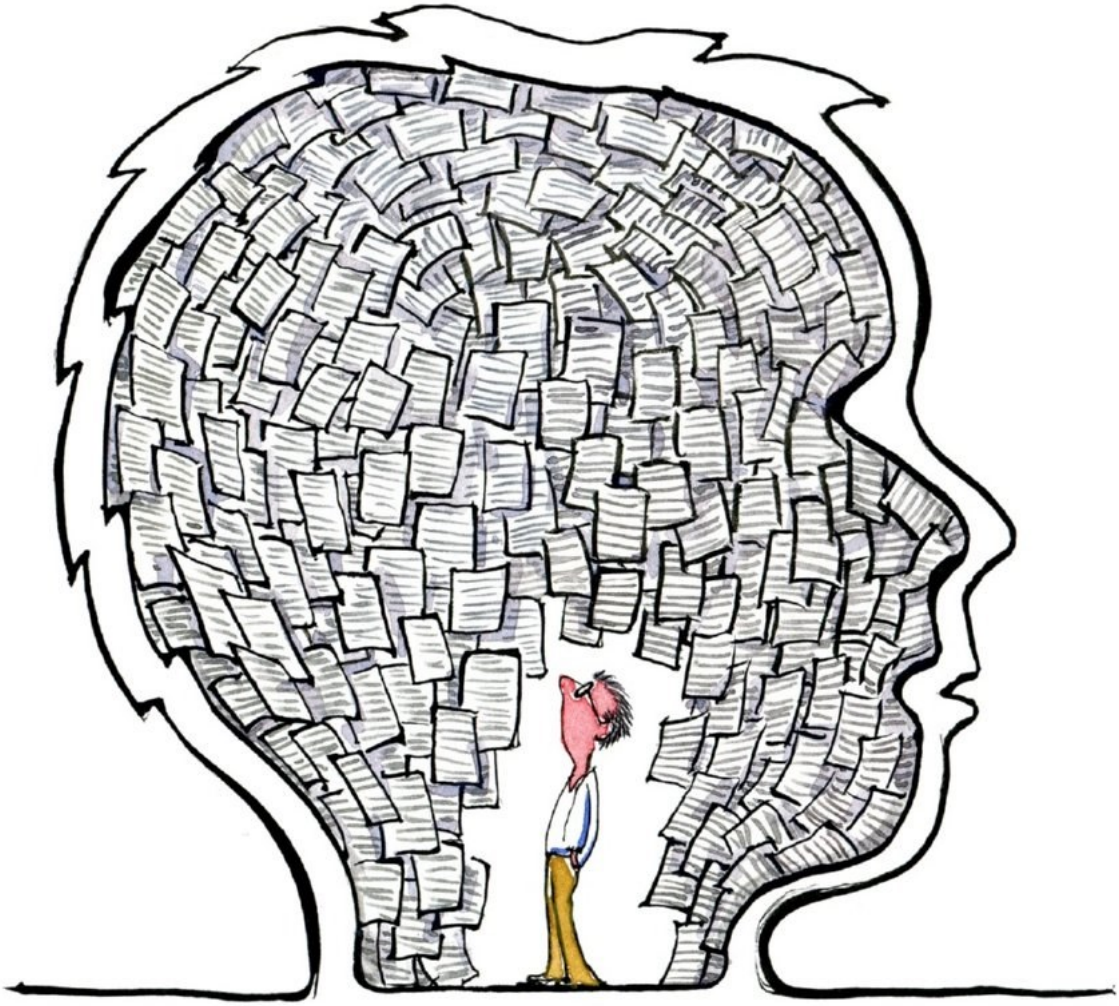
VISUAL LITERACY



Infographics Interpretation and Creation

INSTRUCTOR VERSION

Developed by Ashley Pryor, Ph.D, Heidi Appel Ph.D., and Rose Mansel-Pleydell
The Jesup Scott Honors College
The University of Toledo

Purpose

The module is designed to provide students with an understanding of the use of infographics for communicating complex ideas efficiently and effectively. Students will learn about different platforms that are available for creating infographics (Easly.y, Piktochart, Canva, etc.), and how to refine and "wire frame" complex information into a visual representation.

Student Learning Objectives

Upon completion of this module, students will be able to :

1. Critique examples of infographics for effectiveness and appropriate design
2. Communicate complex ideas, problems or issue effectively and efficiently through the strategic use of images in an infographic
3. Determine the nature and extent of the visual materials need to complete their infographic
4. Find and access needed images and visual media effectively and efficiently
5. Organize and refine research using an annotated bibliography
6. Design and create a meaningful and effective infographic
7. Communicate their ideas effectively with attention to purpose, audience and style
8. Demonstrate proficiency with one infographic software application

Note that there is a companion module on Image Use, Search, and Appropriation.

To learn more about the Visual Literacy Initiative at The University of Toledo, visit this link: http://www.utoledo.edu/honors/visual-literacy/

Background

Instructor's notes:

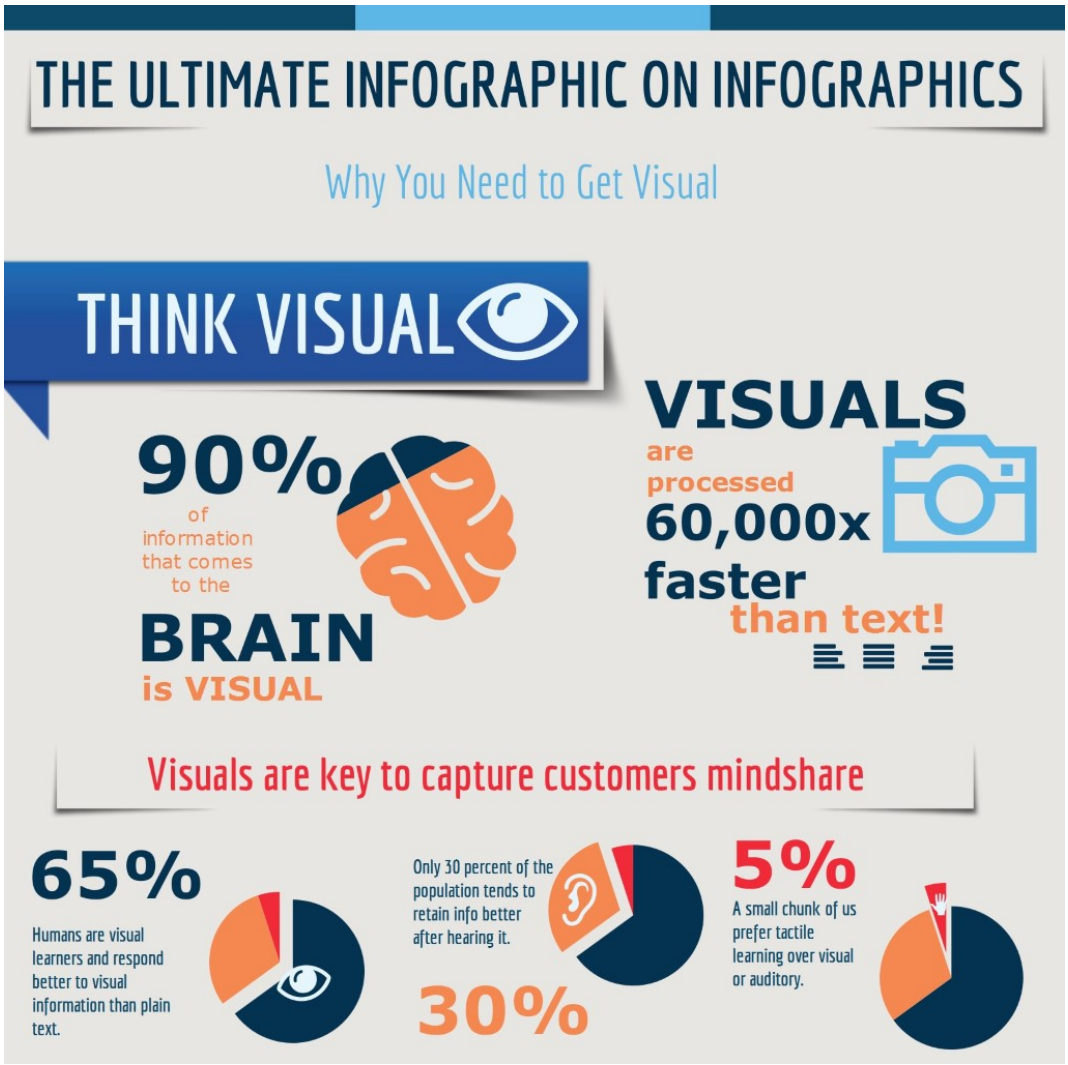
- *Update with your own discipline-specific Student Learning Objectives appropriate to your course.*
- *Update with your own discipline-specific story about the importance of accurately and effectively communicating information. Examples might include:*
    - *convincing a boss of the need for an organizational update*
    - *good design decisions in engineering depend on clear display of visual data*
    - *aesthetics of good design includes clarity in presentation of data in visual displays*
    - *health information comes in many visual forms that influence how it is understood and interpreted*
- *Transition to the activity by outlining the importance of being aware of and using visual language in broader ways than infographics. For example, introduce the topic by teaching two very basic lessons on a random subject, one using a short lecture, and one using an infographic, and then quiz students over the information. Retention for the visually presented info should be better than the lecture.*

Background

Infographics are everywhere you turn: A Google Search of "Infographics" on 4.28.18 Yielded 58,500,000 results. Why have infographics become so popular?

According to a report conducted by Infographic World, **90% of information transmitted to the brain is visual** , and visuals are known to improve learning and retention by 400%..Some of the reasons for this dynamic include the following:

- Progressively shorter attention spans, thanks to smartphones
- The fact that humans absorb information faster with corresponding graphics (we may forget what we've read, but remember what we've seen), and
- Viewers tend to be triggered emotionally by images


THE ULTIMATE INFOGRAPHIC ON INFOGRAPHICS
Why You Need to Get Visual
THINK VISUAL
90%
of information that comes to the
BRAIN
is VISUAL
VISUALS
are processed
60,000x
faster
than text!
Visuals are key to capture customers mindshare
65%
Humans are visual learners and respond better to visual information than plain text.
Only 30 percent of the population tends to retain info better after hearing it.
30%
5%
A small chunk of us prefer tactile learning over visual or auditory.

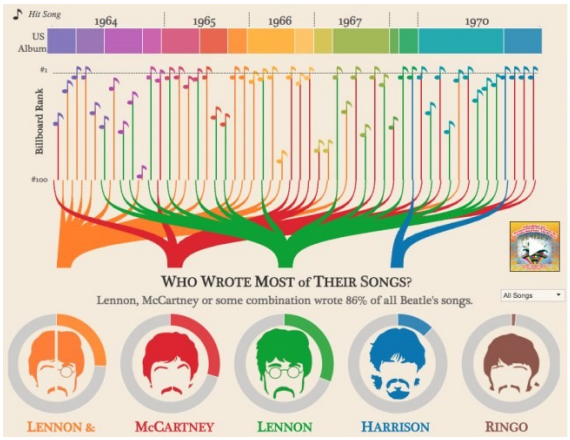
Source: Forbes Magazine:https://www.forbes.com/sites/cherylsnappconner/2017/10/19/the-data-is-in-infographics-are-growing-and-thriving-in-2017-and-beyond/#541215e5137c

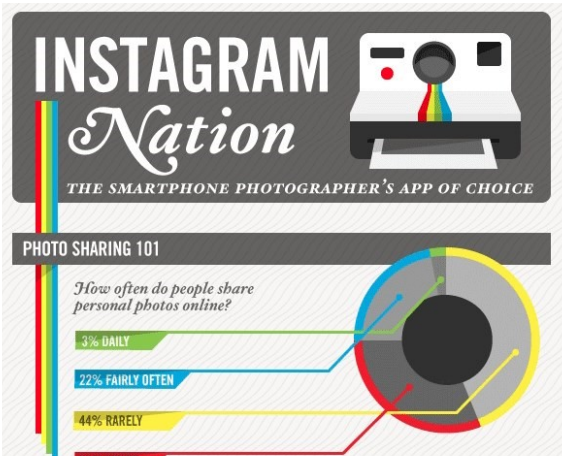
But exactly what is an Infographic?

Definition of an Infographic

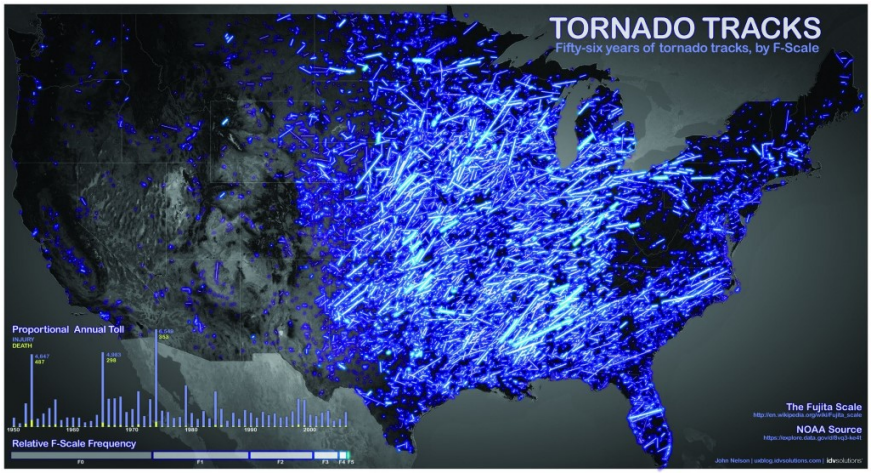
An infographic is a claim expressed through a **visual metaphor,** conveying the creator's **fresh understanding of relationships**, expressed through a **judicious selection** and **arrangement of visuals, evidence, and text** acquired during inquiry research within a discipline." (Abilock & Williams, 2014)

Topics range from the mundane:

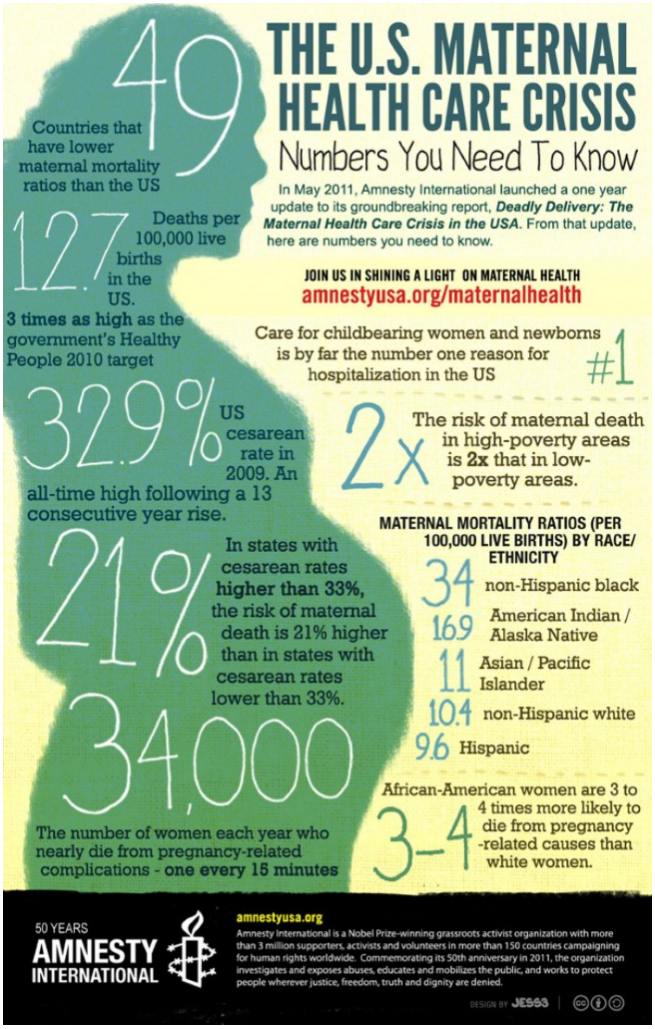




To the most serious & consequential:



1 - Tornado Tracks, by John Nelson, cartographer at IDV Solutions in Lansing, Michigan


THE U.S. MATERNAL HEALTH CARE CRISIS
Numbers You Need To Know
49 Countries that have lower maternal mortality ratios than the US
In May 2011, Amnesty International launched a one year update to its groundbreaking report, Deadly Delivery: The Maternal Health Care Crisis in the USA. From that update, here are numbers you need to know.
JOIN US IN SHINING A LIGHT ON MATERNAL HEALTH
amnestyusa.org/maternalhealth
12.7 Deaths per 100,000 live births in the US.
3 times as high as the government's Healthy People 2010 target
Care for childbearing women and newborns is by far the number one reason for hospitalization in the US #1
32.9% US cesarean rate in 2009. An all-time high following a 13 consecutive year rise.
2x The risk of maternal death in high-poverty areas is 2x that in low-poverty areas.
21% In states with cesarean rates higher than 33%, the risk of maternal death is 21% higher than in states with cesarean rates lower than 33%.
MATERNAL MORTALITY RATIOS (PER 100,000 LIVE BIRTHS) BY RACE/ETHNICITY
34 non-Hispanic black
16.9 American Indian / Alaska Native
11 Asian / Pacific Islander
10.4 non-Hispanic white
9.6 Hispanic
34,000 The number of women each year who nearly die from pregnancy-related complications - one every 15 minutes
3-4 African-American women are 3 to 4 times more likely to die from pregnancy-related causes than white women.
50 YEARS AMNESTY INTERNATIONAL
amnestyusa.org
Amnesty International is a Nobel Prize-winning grassroots activist organization with more than 3 million supporters, activists and volunteers in more than 150 countries campaigning for human rights worldwide. Commemorating its 50th anniversary in 2011, the organization investigates and exposes abuses, educates and mobilizes the public, and works to protect people wherever justice, freedom, truth and dignity are denied.
DESIGN BY JESS3

2 - Photo source: Amnesty International via https://visual.ly/community/infographic/human-rights/us-maternal-healthcare-crisis

Why Infographics?

"**Visual literacy** is one of the acquired competencies that 21st-century learners (Rychen & Salganik, 2005) should have in order to be able to communicate more **instantly** and **universally** which can be realized with visuals (Metros, 2008). Due to a **'pictorial turn'** (Felton, 2008), visuals became more substantial for communication and meaning making, which emphasizes **the inevitableness of being visually literate**." (Kibar & Akkoyunlu, 2017) (emphasis added).

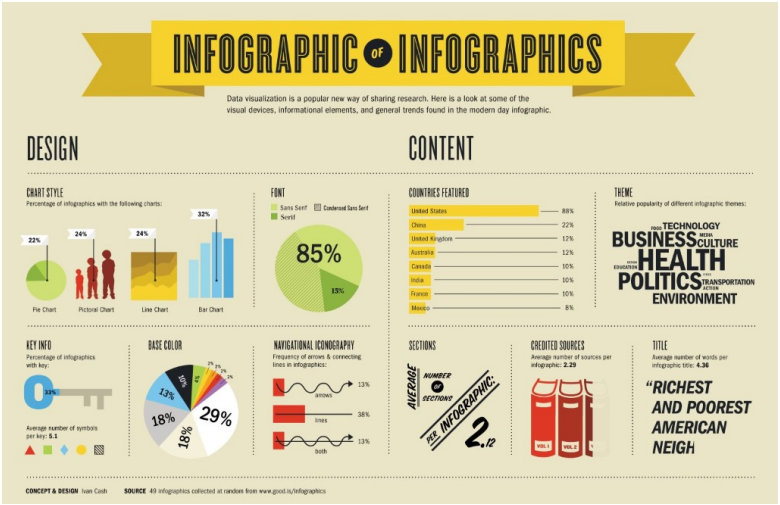
"Currently, with the integration of various digital tools and learning mediums, a shift in 'the roles of students from consumers to creators has become necessary in education (Johnson, Adams, Becker, Estrada, & Freeman, 2015). This trend has inspired the use of digital tools and mobile technologies in class to encourage students to create **their own content or knowledge rather than simply consume content.** Methods of learning tasks and environments that foster student creativity are therefore needed." (Kibar & Akkoyunlu, 2017) (Emphasis added).

The ability to use Infographics is becoming an important skill for many professions

Infographics aid marketing and business development. The state of communications is increasingly visual. At this point, nearly three-quarters of marketers rely on visuals in their social media messaging. The new research indicates nearly 60% of businesses queried have used infographics, mostly for marketing and sales purposes. Of those who've used infographics in the past year, nearly all have found them effective.

Here are a few of the highlights from the report:

- 74% of marketers rely on visuals in their social media messaging
- 56% of companies queried use infographics.
- 84% who've used them consider the medium effective

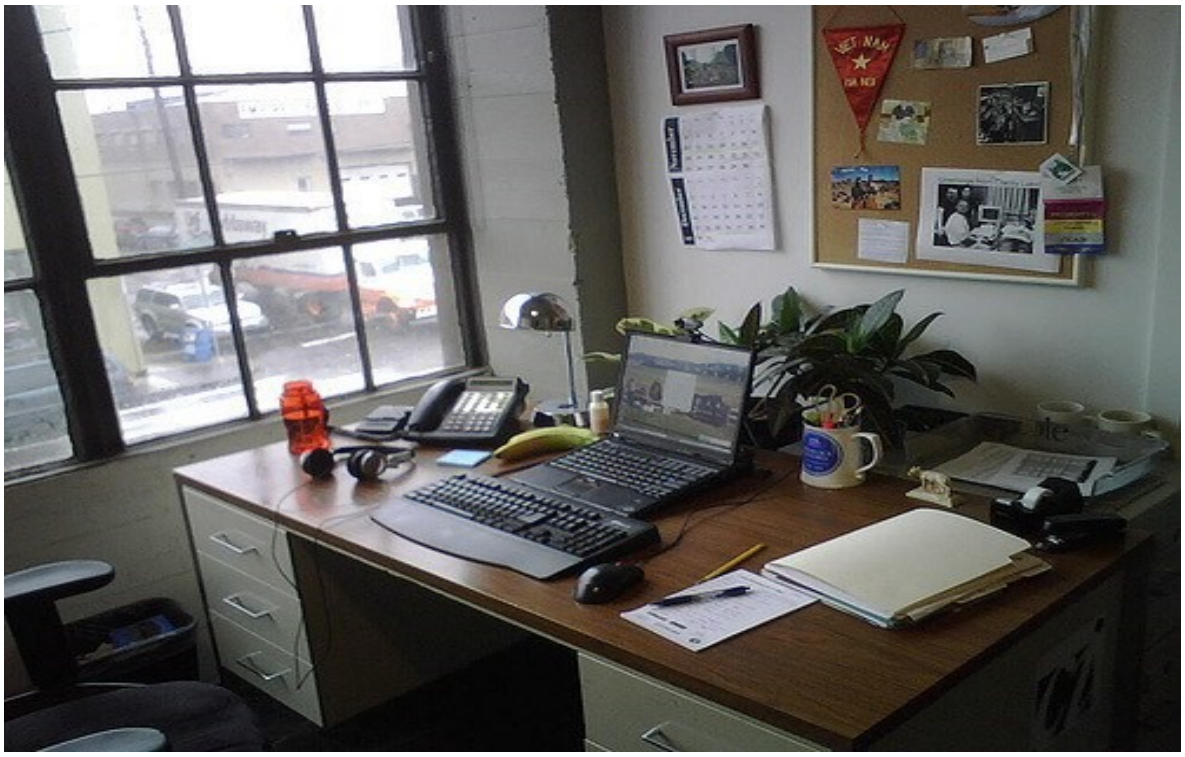


Source:https://www.forbes.com/sites/cherylsnappconner/2017/10/19/the-data-is-in-infographics-are-growing-and-thriving-in-2017-and-beyond/#541215e5137c

The use of Infographics however is not limited to the business world

Infographics are helpful in any field where:

- You need to visually represent survey data in a compelling and easily understood format
- You need to simplify a complex concept or issue
- You want to make a comparison between two ideas
- You want to organize a series of interesting facts
- When words alone don't do the trick
- Raise awareness about an important way that grabs your viewer's attention
- Explain relationships between ideas



For a deeper dive into the specific applications of infographics and for examples of good infographic design please read:

https://thenextweb.com/dd/2013/10/16/10-ways-use-infographics/

Activity #1

Critique infographics

View the assigned infographics and consider the following:

Discussion Questions:

- What is your first impression of this infographic? Is it positive or negative?
- What is the main point the infographic makes?
- Can you understand the data being presented? Why or why not?
- Is this the best way to present this information? How else could it have been explained? (Blog post, graph, slideshow, video, lecture, etc)
- Why do/don't you find the topic relevant or interesting?
- Does the information seem valid? How can you tell?

Instructor's notes:

- *See this file for examples of infographic critiques.*
- *You are encouraged to search for infographics specific to your discipline that provide strong and weak examples for students to critique.*
- *Discussion questions can be guided by the instructor (i.e. Present the infographic to the class, allow them to observe it, then begin asking "Someone tell me your first impression of this infographic?" Or it could be in the form of a written assignment or discussion board.*
- *This is a great opportunity to acquaint your students with the rubric for the infographic they will be creating, using the provided rubric or one of your own. Encourage students to consider these guidelines when critiquing the infographics.*
- *Alternatively, based on your class's ability, you could assign students to find an example of a good and a bad infographic and write three reasons to support their view.*

Activity #2 Practice making an infographic

Students will return to the following article:
https://www.forbes.com/sites/cherylsnappconner/2017/10/19/the-data-is-in-infographics-are-growing-and-thriving-in-2017-and-beyond/#541215e5137c

Drawing from the information presented here, students will create a simple infographic as a sort of pretest to test out their knowledge of infographics and design.

Prompt:

Revisit the Forbes article mentioned above. With a small group, choose a topic from this article to make an infographic about. The broad goal should be to make an infographic about the usefulness of infographics in communication. More specifically, you could create an infographic about why infographics work or retention from various mediums. Follow these steps to create an infographic:

1. Select the important information
2. Organize the information in a rough draft or "wireframe" on a sheet of paper
3. Brainstorm how to include visuals (graphs, clipart, etc.)
4. Create an infographic using Piktochart
5. Share your infographic with the class and note strengths and areas for improvement

Instructor's notes:

- *Another option is to provide students with a few pre-chosen pieces of information from the article from which to build an infographic. This eliminates the step of retrieving information, which they will explore during the final project.*
- *Keep this activity simple, and encourage students not to overthink the assignment, but to test out their designing skills.*
- *Aim for this step to serve as a pretest: the infographic made in this activity should be compared later to the infographic designed after learning about what makes an infographic strong or weak.*
- *In the final step, again introduce the rubric for the assignment to help familiarize students with the expectations.*

The Assignment: Step by Step

Goal: Students are to create an infographic on a topic to be determined by the instructor and/or the class**.**

Step One: Defining the Context & Identifying the Scope of Work

After you are assigned a topic, please answer the following questions: (questions adapted from Abilock & Williams)

1. Who is your audience that cares about this problem?
2. What is the specific problem or issue that they care about?
3. What choices, options, or trade-offs will they need to consider in order to make a decision (if known)?
4. What research will you need to do to address questions 1-4?
5. What types of thinking will you have to do to organize the information you gather?
6. What content have you learned already that you can draw upon?

It may be helpful to look at Williams' "Infographic Question Matrix" (pages 20 & 21) to complete this process: Question Design Matrix

(First Class Session)
As a group, or individually, brainstorm 5-10 key ideas you think every person should know about your topic. You will have a chance to revisit this list after you have had a chance to research your topic more fully.

Instructor's notes:

- *Topics may be assigned to groups, chosen from a list, or you may allow students to choose any topic they find interesting (as long as they clear the proposed idea with you).*
- *This would be a good opportunity to once again tie this module into your discipline-specific content by providing a theme for the infographic topics, such as the lesson preceding or following the module in your course.*
- *Group work is an important component of this assignment, because steps like the brainstorming will be much more productive in a group than by a single student.t*

Overview: Hallmarks of Effective Infographics

View this video on what makes a good infographic:
https://www.youtube.com/watch?v=nLxQAa5Sras&feature=youtu.be

Recap: Key Elements of Effective Infographics

Here are some general principles that you should keep in mind as you begin to think about laying out the elements of your infographic:
(Adapted from "The Rules" by Amy Balliett, "Learning Info graphic Design" (Lynda.com))

1. Always remember "con-text" (infographics should be driven by images, rather than text -- if there is too much text, it's a con!)
2. Prioritize your goals (a key to good design is to highlight the essential information that you want to convey and edit out the rest)
3. People care less than a goldfish (a good infographic should convey its meaning in 9 seconds -- the attention span of a gold fish --which is longer than humans (a mere 6–8 seconds!)
4. Good content is 50% of a successful infographic (hence, the importance of doing good research in advance of wireframing)
5. Use correct visualization throughout
6. Be a storyteller! (we all love a good story, try to organize your infographic in such a way that it appeals to our natural hunger for a good story)

Task 1: Research & Annotated Bibliography

Purpose: The purpose of this assignment is to ensure that you have sufficient and relevant content for your infographic. Additionally, the process of writing an annotation will help you identify and prioritize the key ideas that you will want to include in the infographic.

Task 1: Finding useful sources and producing an Annotated Bibliography

- Please choose **3** key ideas from your brainstorm list and do some research on them. (Your instructor will provide you with guidelines for locating appropriate sources for your topic.)
- After you have identified your sources, and read them, please write an **annotated bibliographical entry** for each resource
- If you are unfamiliar with how to create an annotated bibliography, please review the following example:
  https://www.une.edu.au/__data/assets/pdf_file/0008/11132/WE_Writing-an-annotated-bibliography.pdf
- Please bring these entries with you to the next class. You will need them to complete the next stage of this project.

Instructor's notes:

- *Remind students of scholarly platforms from which to retrieve sources for their bibliography (OhioLINK, WorldCat, Google Scholar, etc.).*
- *Encourage use of printed books if it is feasible for the topic chosen.*
- *Review the process for writing an annotation using the PDF indicated above.*
- *It may be helpful to set a minimum word count for the annotations, such as 100 or 150 words.*

Step Two: Visualizing your Information

Overview: Wireframing

What is a wireframe?
A wireframe (a term that is commonly associated with website design) is a visual representation that demonstrates the relationship of elements on a page. The wireframe is a temporary and preliminary model**.** The wireframe is typically created on paper in advance of any digital modeling. The wireframe is by nature a work in progress, to be substituted with a polished product**.** It is roughly the equivalent of an "outline" in traditional writing contexts.

View the following video on wireframing for web design:
https://www.youtube.com/watch?v=T0vt3nLZKks&feature=youtu.be

For help identifying "styles" of infographics you could use to organize info, visit the following page: http://blog.visme.co/types-of-infographics/

Task 2: Individual Wireframing from Research
Using your annotated bibliographical entries as a resource, visualize the key information on a sheet of paper. The key to the successful completion of this task is to remember that you are attempting to give a visual representation of the relationship of ideas and the hierarchy of relations between them**.**

1. Look over your research annotations and identify the essential information that should be included in your infographic. It may be helpful to go back to your info graphic questionnaire to review your answers concerning content, audience, etc.
2. On paper sketch out at least three versions of the placement of your information, remembering that ideally you will be substituting much of the text with images.
3. Remember to consult the info graphics best practices as you create your version.
4. Share your three versions with another classmate, or with your group. Which layout do they find compelling? Why?

Instructor's notes:

- *If you have access to whiteboards, this may be helpful for students because it makes editing their wireframe sketch easier.*

- *If students struggle with getting this step started, have them write or type out a traditional outline in text form and then organize "chunks" of information with sketches or index cards.*

Step Three: Choosing your Infographic software

There are several good options for sites that will help you to create visually appealing info graphics that are either free or low cost. Here are a few of them:

Easel.ly
Canva
Piktochart
Microsoft Powerpoint (charts and drawing tools)
Google Drawing

There are no hard and fast rules for choosing an infographic design site. You will find links to tutorials that can help you decide which platform best suites the anticipated needs of your info graphic design. Play around with a couple of options and see which works best for you!

Task 3: Explore the above links. At the end of this process be prepared to identify which platform is best suited to your project and to discuss the reasons why.

Instructor's notes:

- *This step can be completed individually, in groups or as a class*
- *Have groups report back to you or announce to the whole class which platform they have selected and why*
- *Ensure students actually look into each option, some may be more suitable than others for certain styles or themes (i.e. graphs versus timelines)*
- *Encourage students to find video tutorials for their software to learn how to create certain effects or designs*

Step Four: Creating your Infographic

Task 4: Drawing upon what you have learned in steps 1-3, create an infographic on your topic, using the info graphic platform of your choice.
Your instructor will let you know how to submit your project for grading. Please print out a copy to bring to the next class, as we will be presenting the infographics for peer review.

Assignment Sheet
Grading Rubric

Instructor's notes:

- *Choose acommon format in which the infographics will be submitted in (PDF works well)*
- *Compile all submissions into a folder for easy presentation to the class during the next step*

Step Five: Infographic Presentation & Peer Review

Congratulations! You have completed your first infographic! Now it's time to show off your work!

Instructor's notes:

- *Structure the review however you feel would be most productive, whether that involves blind critiquing the infographics without knowing who made each one or teams. presenting their infographic and then students asking questions and making comments*
- *You may find it helpful to also have each team or individual complete a self-evaluation and fill out a rubric for each of the infographics in advance of their presentation.*
- *Include in the students' grades credit for both the creation of an infographic and for honest and constructive critique/analysis of the work of other teams.*

Skills Assessed in Infographic Assignments

Infographics Functional Design Principles (Pettersson, 2012)

1. Defining the Problem
2. Providing Structure
3. Providing Clarity
4. Providing Simplicity
5. Providing Emphasis
6. Providing Unity

Cognitive Design Principles (Pettersson & Avgerinou, 2016)

1. Facilitating attention
2. Facilitating perception
3. Facilitating processing
4. Facilitating memory

Rubric for this assignment: Infographic Rubric

Selected Bibliography

Abilock, D. & Williams, C. (2014). Recipe for an Infographic. *Knowledge Quest. I43 (2):46.*

Avgerinour, M.D., & Pettersson, R. (2016). " Teaching Reports: Information design with teaching and learning in mind. " *Journal of Visual Literacy*, 35 (2), 253-267.

Davenport, T.H. (1994). Saving IT's Soul: Human Centered Information Mangement. *Harvard Business Review, I 72 (2). 119-131.*

Kirsh, B., Marlow, D., Pingley, A., Leonhirth, D. & Lownes, S., (2016)." Improving Student Engagement with Technology Tools." Currents in Teaching and Learning. Retrieved from

Petterson, R. (2012). *It depends: ID-principles and guidelines.* Tullinge, Sweden: Institute for Infology. Retrieved from

Rychen, D.S., & Salganik, L.H. (2005) *The definition and selection of key competencies: Executive summary* Organization for Economic Cooperation and Development (OECD).

Smikicklas, M. (2012). *The Power of Infographics: Using pictures to communicate and connect with your audiences.* Indianapolis, IN: Pearson Education, Inc.